

Montana Department of Natural Resources and Conservation
Conservation and Resource Development Division
2019 Reclamation and Development Grants Program Abstracts

Applicant Name: City and County of Butte-Silver Bow, Planning Department

Project Title: Butte-Silver Bow Erosion Control and Vegetation Enhancement Program

Project Abstract

Butte, Montana is located at the headwaters of the Clark Fork River of the Columbia River Watershed. A century of mining and smelting within the city's urban area has had substantial adverse impacts on Butte's urban center and historic mining infrastructure. Many properties have been identified as source areas for heavy metals, posing a threat to human health and the environment, primarily the ground and surface water quality in the Silver Bow Creek watershed.

Since the early 1990's, under the CERCLA federal program (aka Superfund) and more specifically within a geographic area designated as the Butte Priority Soils Operable Unit, many of these properties have been reclaimed and will be maintained in perpetuity under the federal program. BPSOU is 5,000 acres in area and approximately 1,200 acres have been reclaimed, while some impacted areas remain un-reclaimed as the soils do not exceed human health action levels (under federal and state standards) for contaminants of concern. Despite this, elevated metals concentrations are present on certain of these properties, inhibiting the growth of healthy vegetation and ultimately, causing adverse impacts on surface water quality in the Silver Bow Creek watershed.

Butte-Silver Bow seeks funding to implement a reclamation Project for mining impacted lands ineligible for action under Superfund. The Project is designed to meet three goals:

1. Improve vegetation cover and habitat;
2. Reduce sediment delivery to the storm water system and area receiving waters; and
3. Improve water quality in area receiving waters, specifically Blacktail Creek and Silver Bow Creek.

These goals are to be achieved through implementation of the Erosion Control and Vegetation Enhancement Project to reclaim 11 non-Superfund sites over the course of 3 years. This will be achieved through three objectives:

1. Selection of properties for inclusion in the Project;
2. Selection of the preferred reclamation alternative; and
3. Implementation of engineered designs for reclamation, vegetation enhancements and storm water management infrastructure.

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Applicant Name: Confederated Salish & Kootenai Tribes

Project Title: Revais Creek Mine Tailings Reclamation

Project Abstract

The Revais Creek Mine Tailings Reclamation project is located on Tribal Trust Land approximately 6.5 miles southwest of Dixon in Sanders County. Over 3,000 cubic yards of abandoned mine tailings are in the floodplain adjacent to Revais Creek, and the bluish-green tailings erode to the creek during high water. Concentrations of multiple metals are well above levels safe for aquatic life when the tailings erode to the creek, including concentrations of copper that are more than 1,000 times higher than the threshold concentration for fish health. The unvegetated tailings area is easily accessible, and is used as a paintball course, where those that recreate are exposed to arsenic at concentrations more than 10 times higher than the applicable recreational screening level. Multiple metals are at concentrations above Montana numeric standards in shallow groundwater below the tailings, and this groundwater is ultimately connected to surface water in Revais Creek. The Confederated Salish & Kootenai Tribes (CSKT) seek to protect human health, water quality, and aquatic life in Revais Creek by removing the tailings to an engineered repository located out of the floodplain on Tribal Trust Land, and reclaiming and revegetating both the repository and the former tailings area.

Successful implementation of the project would protect the longest reach of stream containing pure westslope cutthroat trout on the Reservation, and would provide a safe area for shooting sports, camping, and other recreation in the closest forested creek bottom area to the community of Dixon. Removal of the tailings would also protect those who use treated surface water for drinking purposes in the vicinity of the site. From the time the CSKT reach a grant agreement, implementation of the project would take approximately five months, including competitive procurement, repository and haul road construction, removal of waste, and reclamation/revegetation of all disturbed areas.

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Applicant Name: Deer Lodge Valley Conservation District

Project Title: French Creek Mining Restoration, Phase 2

Project Abstract

French Creek is located on the Mount Haggin Wildlife Management Area in the Big Hole River drainage 10 miles southeast of Anaconda. The area was the first gold strike in the Big Hole drainage in the 1860' and mining occurred through the early 1900's. Placer mining in the area for gold has left behind a legacy of degraded stream and riparian habitat. Streams affected by mining in the area have been straightened and their channels confined by placer tails. The placer tails lock the stream into its current straightened configuration resulting in increased stream gradient, reduced riparian area width and isolation of the stream from its floodplain. The straightened channels are also prone to erosion as the stream attempts to regain sinuosity. Over 4,000 ft. of French Creek was straightened downstream of French Gulch to the confluence of Panama Creek when mined and a long dredge pile was created and has acted as a dike preventing the stream from accessing its full floodplain. The stream is attempting to reestablish its natural meander bends, but this process is causing significant stream bank erosion. In addition, Moose Creek, a tributary to French Creek which likely served as an important spawning and rearing tributary to French Creek prior to mining, has been cut off and is disconnected from the main stem of French Creek.

The goal of this project is to restore stream and floodplain function to French Creek impacted by placer mining activities. The objectives are to improve aquatic and riparian habitat and water quality to benefit fish and wildlife, restore fish and aquatic organism passage to Moose Creek and improve wetlands through restoration of a natural channel and floodplain. The Deer Lodge Valley Conservation District is sponsoring this project. It is anticipated that the project will be completed in 2019.

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Applicant Name: Deer Lodge Valley Conservation District

Project Title: Mt. Haggin Upland Restoration

Project Abstract

The Deer Lodge Valley Conservation District , in partnership with the Big Hole Watershed Committee and Montana Fish, Wildlife and Parks, seeks funds to implement on-the-ground restoration work for the Mt. Haggin Uplands Sediment Mitigation and Habitat Restoration Project. The project area is in the uppermost steep slopes of the Mt. Haggin Wildlife Management Area, 10 miles south of Anaconda.

The Mt. Haggin area was severely affected by copper smelting emissions coupled with extensive logging for nearly 100 years. The smelter aerial emissions contained toxins that killed vegetation, contaminated the soils, and lowered the soil pH. Much of the uplands have lost several feet of topsoil to erosion. Erosion and sediment delivery to nearby streams remains an active force on this landscape, causing declining ecologic trends. These impacts have decreased the bio-physical resiliency of the area, thus demanding critical action.

The over-arching purpose of the project is to reclaim and restore biophysical integrity and vegetation to public land adversely affected by copper smelting emissions. This project expands on a demonstration project implemented with an RDG Planning Grant (RITP-16-0109), and has two goals: 1) Abate sediment delivery to California and Joiner Creeks and downstream waterways and; 2) Improve upland wildlife habitat and forage. Objectives will install targeted sediment control BMPs and promote the establishment and growth of native vegetation by developing seed germination beds, including soil micro-topography, soil amendments, seeding, and transplant and soil microbe inoculation.

Areas selected for treatment include the 5 restoration polygons with the highest erosion and sediment contribution rates on both sides of the continental divide, totaling 93.8 acres.

Sediment reductions in these areas will benefit westslope cutthroat trout and Arctic grayling. The proposed action also contributes to larger landscape-scale restoration programs currently underway on both sides of the divide.

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Applicant Name: Deer Lodge Valley Conservation District

Project Title: Oregon Creek Placer Mine Reclamation

Project Abstract

The Deer Lodge Valley Conservation District, in partnership with the Big Hole Watershed Committee and Montana Fish, Wildlife and Parks, seeks to implement the Oregon Creek Placer Mine Reclamation Project, Phase 2 in the lower reach of Oregon Creek that is historically impacted by placer mining. This project is one of a suite of projects in the French Creek watershed designed to address basin-wide water quality and habitat issues, as well as native fishery restoration. The overall goal of the placer mine restoration project along Oregon Creek is to restore stream, wetland and riparian function to the mining-impacted reaches of Oregon Creek. To achieve this goal, stream restoration will be undertaken to increase channel sinuosity and reduce channel slope, which will result in more frequent and higher quality pool habitat for fish and provide potential spawning for westslope cutthroat trout and Arctic grayling. In addition, floodplain reconnection will expand the riparian area adjacent to the stream and promote proper stream function through time. Water quality improvements will also be achieved by reducing sediment loads from streambank and upland erosion and by providing an increased riparian buffer between the historic placer tails and the stream channel, which will reduce the potential for metals inputs to Oregon Creek.

Oregon Creek is a headwater tributary of California Creek, which flows into French Creek, and then into Deep Creek, which feeds into the Big Hole River upstream of Dickie Bridge. Oregon Creek is located approximately 12 miles southeast of Anaconda in Deer Lodge County. The project area is located in the Mount Haggin Wildlife Management Area and includes approximately 0.5 miles of Oregon Creek, extending downstream from the Highway 569 crossing to the confluence with California Creek. It is anticipated that this project will be completed in 2018, or as late as 2019.

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Applicant Name: Deer Lodge, City of

Project Title: Milwaukee Roundhouse CECRA Site Passenger Refueling Area VCRA Program Remediation

Project Abstract

The Montana Department of Environmental Quality lists the Milwaukee Roundhouse Area (MRA) as a High Priority state CECRA (Superfund) site. This site was listed between 1987-1989. Since that time there has been a patchwork of investigations and remediation activities but with the recent completion of the RI by the DEQ and some subsequent clean-up that has occurred at the site, the State of Montana is now in the best position in decades to finally remove some of the remaining, lingering contamination of soils and groundwater remaining at this site.

Currently there remains contaminated soil in a wetland and a dissolved petroleum product plume in the shallow aquifer as well as contaminated sediments within Cottonwood Creek. The community and the environment need the State to continue what has been started with the RI work and get this site on the path to closure.

The MRA site is located in the City of Deer Lodge in Powell County. The PRA portion of the site is north and east of Clark Fork River and adjacent to the Clark Fork River Operable Unit Federal Superfund site.

The project goals are to: 1) update the soils and groundwater characterization of the PRA from the 2015-2016 soil removal activity so 2) remaining contaminated soils and groundwater can be removed or remediated. Once this work is complete, the only component remaining unresolved is the contaminated sediment in Cottonwood Creek. Goal 3) is to characterize these sediments and determine the source so that a remediation plan can be developed.

The objective of this work is to close and delist this State Superfund site so that the community can move forward with additional public and private funding and volunteer support to realize their wish for an open space park and non-motorized trail that can convert this State Superfund Site from a liability to an amenity.

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Applicant Name: East Helena Public Schools, School District No. 9

Project Title: Dartman Field Reclamation

Project Abstract

The goal of the project is to remediate heavy metals contamination, particularly arsenic and lead, in the Dartman Field surface soil so that the property can be developed for construction of up to three school structures and associated facilities on a 50-acre parcel to accommodate increasing school enrollment. The project also addresses the urgent need to expand school facilities to accommodate current and projected elementary and middle school student enrollment in the East Helena Public Schools. The Dartman Field was formerly owned by the Merritt-Dartman homesteaders and their descendants. The property was later acquired by ASARCO, who formerly operated the East Helena Smelter. Ownership of the property was transferred to the Montana Environmental Trust Group, LLC (METG), as the Court-approved Trustee of the Montana Environmental Custodial Trust (the Custodial Trust).

East Helena was the home of the Asarco lead smelter for more than 100 years. The school district in East Helena has 1,205 students that are educated in three school buildings, which are located within that East Helena Superfund Site. East Helena is a growing community that is being impacted by new home construction from multiple subdivisions. With the future of expansion of classroom space necessitated by this growth, it is imperative that the school district locate property for up to three new elementary and/or middle schools, which is projected to serve the district for the next 50 years.

The proposed work includes initial deep tilling and amending of the site surface soil to reduce metal concentrations. This treatment is the preferred alternative selected by the U.S. Environmental Protection Agency in the Record of Decision for residential and undeveloped areas in the East Helena Superfund site.

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Applicant Name: Fort Belknap Indian Community

Project Title: Landusky Pit and Swift Gulch Capture Wells to Reduce Acid Mine Discharge to State Waters and the Fort Belknap Indian Reservation

Project Abstract

The DEQ has been directing reclamation of the Zortman and Landusky sites since the bankruptcy of Pegasus Gold Corporation (PGC) and its subsidiary Zortman Mining, Inc. in 1998/1999. The bankruptcy left the State with insufficient bonds to complete all necessary activities at the mines. Costs of treating water have significantly exceeded the anticipated and bonded amounts. Water quality deterioration in Swift Gulch began in 1999, so no bonds were in place to address impacts in that drainage. Although Swift Gulch surface water is currently diverted and treated, mine contaminants cannot be completely captured and still pollute state waters which flow onto the Reservation one mile below the site (Tribal waters). This project aims to control and capture AMD on the Landusky site before it discharges to Swift Gulch.

The Landusky Mine site is located adjacent to the Fort Belknap Reservation, 10 miles southeast of Hays and 50 miles southwest of Malta, Montana in Phillips County. The site is located in the Little Rocky Mountains, on a combination of private lands and federal lands administered by the Bureau of Land Management (BLM).

The project goals is to install and test permanent groundwater capture wells within the Landusky Pit complex and in Swift Gulch. They will intercept acid mine drainage (AMD) beneath the pit and within Swift Gulch and direct it to existing water treatment plants prior to discharge into Swift Gulch, which flows onto the Reservation. These wells would become part of the permanent pollution control infrastructure on the Landusky Site.

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Applicant Name: Granite Conservation District

Project Title: Flint Creek Watershed Metals Remediation—Fred Burr Creek, Rumsey Mill Tailings

Project Abstract

The Flint Creek watershed (FCW) is located in Granite County and covers approximately 500 square miles. The watershed originates in the Flint Creek Mountains to the east, the Pintlar Mountains to the south, and the Sapphire and John Long Mountains to the west. Flint Creek drains from Georgetown Lake and bisects two large agricultural valleys, the Philipsburg Valley and the Drummond Valley. Land within the watershed is primarily private and United States Forest Service (Beaverhead-Deerlodge National Forest), with a small amount of land managed by the Bureau of Land Management and the State of Montana. Land use within the watershed is used primarily for forestry and grazing, with agricultural use in the valleys.

The Flint Creek watershed is known for historic mining and milling activities. Located within the watershed are two significant streams: Douglas Creek and Fred Burr Creek. Both creeks flow to Flint Creek and have been impacted by historical mining. The Granite Headwaters Watershed Group, a local citizen coalition, and the Granite Conservation District (CD) have partnered with state and federal agencies to form a Technical Advisory Committee and to develop a comprehensive plan for remediating metals contamination in the FCW. This project focuses on metal contamination in Fred Burr Creek.

Located on Fred Burr Creek is the Rumsey Mill. The 100-stamp mill was built in 1888 and began its operations in 1889. The mill processed gold and silver ore from the Granite Mine. It was connected to the Granite Mine by an 8,900 foot tramway and to Philipsburg by a 7.7 mile extension of the railroad. The mill utilized a chloritizing roasting and pan amalgamation process (Reece River process) to treat the ore. The ore was dried, crushed, roasted with salts and then treated in pan amalgamations using mercury. The ore was then collected and concentrated. The tailings were collected in impoundments below the mill along Fred Burr Creek. The mill ceased operations in 1893 with the repeal of the Sherman Silver Purchase Act.

Recent surface water and sediment sampling results completed by the Department of Environmental Quality (DEQ) show elevated metals concentrations, including mercury, in Fred Burr Creek. This, along with results from several past support that it is strongly suspected that contamination of the water column is from the Rumsey Mill and from tailings dispersed in the riparian corridor of Fred Burr Creek downstream from the Rumsey Mill. The work associated with this grant will focus solely on the source area (mill site). It is anticipated that the fluvially deposited tailings downstream from the Rumsey Mill will be addressed at a later time. A small portion of the grant will be used to conduct sampling of the source area to identify the nature and extent of the contamination. This additional sampling is needed so reclamation efforts and funds can be focused on the most contaminated areas.

The DEQ, in coordination with the CD, will be the organization responsible for conducting this reclamation work, which is one phase of a multi-phase project. This phase of the project is anticipated to be completed in the fall of 2018. The work anticipated under this grant is a small piece of the overall FCW metals remediation efforts being conducted by the CD. This project is a joint effort between Granite Conservation District, DEQ, and the Bureau of Land Management.

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Applicant Name: Harlowton, City of

Project Title: Removal of Contaminated Soils and Free Product at the Harlowton Roundhouse

Project Abstract

The City of Harlowton (City), with the support of the Montana Department of Environmental Quality (DEQ), is applying for a DNRC RDG Cleanup grant of \$300,000 for the removal of contaminated soils and free product from the Harlowton Roundhouse CECRA Facility (Facility) in Harlowton, MT. The Facility is located at the south end of Central Avenue in Harlowton and adjacent to the Musselshell River.

The Harlowton Milwaukee Roundhouse operated as a railroad engine repair and refueling operation from 1900 to 1979. The Facility's collection/settling pond, which is adjacent to a slough that enters the Musselshell River, would routinely accumulate approximately 3-6 inches of diesel, from refueling overfills and leaking fuel lines, before it was ignited by railroad employees to reduce the contaminant load.

In 2015-2016, DEQ in partnership with the City, used a combination of funds (DNRC Planning Grant, DEQ Orphan Share Account funds, and DEQ Brownfields funds) to investigate the nature and extent of free product contamination at the Facility. A Laser Induced Fluorescence (LIF) probe was used to identify the major pockets of petroleum contamination and delineate the boundary of contamination across the entire Facility. This investigation found five distinct free product zones across the facility. DEQ is addressing the largest free product zone through a 2016 free product recovery system installation funded by DEQ's Orphan Share Account. Also in 2016, DEQ is using Orphan Share Account funds to remove the contamination in the former settling pond zone. This leaves three isolated zones of free product contamination at the Facility.

The City is proposing to use DNRC Cleanup grant funds, while leveraging DEQ's Orphan Share Account cleanup funds and DEQ Brownfields Funds, to address the remaining pockets of free product contamination. The removal of the remaining source zones will allow for future efforts to focus on remediating groundwater and the nearby slough.

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Applicant Name: Lewistown, City of

Project Title: Cleanup of the Central Post and Treating Company

Project Abstract

The City of Lewistown (City), with the support of the Montana Department of Environmental Quality (DEQ), is applying for a DNRC RDG Cleanup grant of \$475,000 for the cleanup of the Central Post and Treating Company Comprehensive Environmental Cleanup and Responsibility Act (CECRA) Facility (Facility) in Lewistown, MT. The Facility is located in the northeast corner of Lewistown approximately 0.5 miles north of East Main Street on Marcella Avenue. From 1968 to 1973 a post and pole operation treated timbers using a mixture of pentachlorophenol and diesel on the surface of a closed city landfill.

In 2015 DEQ, in partnership with the City, used DNRC Planning Grant, DEQ Orphan Share Account funds, and Brownfields funds to investigate the nature and extent of contamination associated with the former wood treating operation and the original landfill. Samples were collected from the current surface, the historic landfill cap, and deep subsurface soils. Results showed no discernable impacts to groundwater. The historic landfill cap showed exceedances in direct contact and leaching to groundwater screening levels for pentachlorophenol and dioxins/furans. The pentachlorophenol contamination was generally limited to the former wood treating area while the dioxins/furans contamination was found throughout the site.

The City is proposing to use both the DNRC Cleanup grant and leverage DEQ's Orphan Share Account funds and EPA 128(a) Grant Funds to address the contamination at the Facility. The removal of these contaminants will ensure that the contamination from historic wood treating operations will prevent future groundwater impacts and protect the health and safety of future lessees, their employees, and visitors. The portion of this project funded by this RDG grant will likely last over two fields seasons (October 2017 to April 2019) to complete removal, cap, and submit an Environmental Assessment (EA) and Remediation Proposal (RP) Voluntary Cleanup Plan (VCP) to DEQ approval.

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Applicant Name: Lincoln Conservation District

Project Title: Tobacco River Restoration Project—Engineering and Implementation

Project Abstract

Lincoln Conservation District (Applicant) in partnership with the Department of Natural Resources and Conservation Resource Development Bureau (DNRC), Montana Fish, Wildlife & Parks, Kootenai River Network, Inc., Montana Department of Environmental Quality (MDEQ), the Town of Eureka, Kassler Family Limited Partnership and Jim Bushfield, Little 69 Ranch LLC (Landowners), are in the process of securing funding to complete the Tobacco River Restoration Project. Located on private land in Lincoln County near the Town of Eureka, Montana, the Tobacco River is an important spawning and rearing habitat corridor for Endangered Species Act (ESA) listed bull trout and westslope cutthroat trout, a Montana Species of Special Concern. Populations of both species have declined due to habitat degradation caused by historic instream gravel mining operations, grazing practices, agriculture, and sedimentation (MDEQ, 2011). The Tobacco River has been identified by the Environmental Protection Agency (EPA) and MDEQ as water quality impaired and in 2011, MDEQ finalized the *Tobacco Planning Area Sediment TMDLs and Framework Quality Improvement Plan*. This plan, and the subsequently *Kootenai River Basin Watershed Restoration Plan* (KRN 2015), identified this section of the Tobacco River as a high priority project for addressing water quality impairment in the Kootenai River Basin.

In 2014, Lincoln Conservation District (LCD) was awarded a \$50,000 DNRC Resource Development Bureau RDGP Planning Grant to develop a preliminary design for the project. In 2016, LCD was awarded a Section 319 grant in the amount of \$288,996 from MDEQ to complete a portion of the work (0.5 miles). This 2016 RDGP funding request would fund the remaining ~0.5 miles, including final design, permitting, implementation, and monitoring. The project would require 16 months to complete, beginning in January 2017 and ending in December 2018. Specific goals of the restoration project include: 1) Reducing sediment inputs to the river resulting from past gravel mining operations that altered channel morphology and streambank and floodplain conditions; 2) improving aquatic, riparian and terrestrial resources by establishing a vegetated floodplain and channel migration zone; and 3) creating complex aquatic habitat components to support life history stages of native bull trout and westslope cutthroat trout.

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Applicant Name: Montana Department of Environmental Quality

Project Title: Basin Creek Mine—Phase 2 Site Stability

Project Abstract

The Basin Creek Mine (BCM) is an inactive open-pit gold mine located approximately 17 miles southwest of Helena. BCM is located within the Upper Tenmile Creek Mining Area National Priorities List (NPL) site and the Basin Mining Area NPL site. BCM was operated historically as an open-pit heap leach facility. Approximately 3,000,000 tons of ore were mined during its operation. Two cyanide heap leach pads were developed and are now closed. Three open pits were developed and two pits were backfilled. One open pit remains (Luttrell Repository) and is being used by the U.S. Environmental Protection Agency (EPA) as a mine waste repository for Superfund remedial activities within the two NPL sites.

BCM was operated by the Basin Creek Mining, Inc., owned by Pegasus Mining Company, before its bankruptcy in June 1998. Between December 1998 and March 2003, a bankruptcy trustee conducted reclamation activities at the site. Most of the post-bankruptcy work was completed by a subcontractor, Mine Reclamation and Closure Services, which was established and operated by past BCMI employees.

In April 2003, the bankruptcy case was closed and the BCMS property was transferred to the State of Montana. Since April 2003, the DEQ has been managing the BCM and has been conducting ongoing mine closure activities. Access to the Luttrell Repository continues to be necessary for the disposal of mining waste materials resulting from remedial activities in both the Basin Mining Area and the Upper Tenmile Creek Mining Area NPL sites.

The DEQ is currently using funds received through the 2014 RDGP to Advertise for Bid a construction work contract which consists of reducing the slope angle and regrading and reclaiming approximately 1,788 linear feet of primary haul road haul by hauling approximately 18,200 cubic yards of material to an on-site stockpile and obliterating and reclaiming approximately 1,500 linear feet of secondary haul road by completing all cutting and filling (15,000 cubic yards total), regrading, and earthwork necessary to reclaim the secondary haul road, and fertilizing and seeding the reclaimed area.

The BCM access road network remains necessary for current and future remedial activities slated for the Basin Mining Area and the Upper Tenmile Creek Mining Area NPL sites. The BCM access/haul roads are considerably oversized and present a significant source of off-site erosion and sedimentation of nearby streams. It is prudent to drastically reduce the BCM haul road width of those roads needed for remedial activities. Other roads within the BCM Complex and one obsolete sedimentation pond are no longer needed, and should be obliterated.

The project goals and objectives are to maintain erosional stability in reclaimed areas; achieve reclamation objectives for revegetation cover, production, and diversity; prioritize roads for reduction or obliteration to stabilize the site to prevent off-site erosion and sedimentation to surrounding surface waters; remove an obsolete sedimentation pond.

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Applicant Name: Montana Department of Environmental Quality

Project Title: Tramway Creek Mine Reclamation Project

Project Abstract

The Tramway Creek Mine Reclamation Project is a cooperative effort between Montana DEQ, Trout Unlimited, Helena National Forest, Deer Lodge Valley Conservation District, Powell County and private landowners. The overall goal of the project is to protect human health and the environment by removing contaminated waste rock and soils from the Upper Little Blackfoot watershed and developing management measures for mine adit discharges.

The Tramway Creek mining complex includes at least a dozen mines in the historic Elliston Mining District, which is located south of Elliston in the upper Little Blackfoot River watershed. This phase of activity includes the safe removal and containment of mine waste rock from the Blackfeet 1, Little Dick, Golden Anchor, and Mountain View mine sites. Under the preferred alternative, mine waste will be hauled and placed at the Charter Oak Repository, and disturbed areas will be amended with topsoil and revegetated.

The upper segment of the Little Blackfoot River is listed as impaired on the state 303(d) list for exceedances of arsenic, cadmium, copper, cyanide, and lead. The Golden Anchor and Mountain View mine sites are listed as priorities #59 and #65, respectively, on the Montana Abandoned Mine Priority List. Collective impacts from the Tramway Creek mining complex led to the conclusion in the Little Blackfoot River TMDL that: "The largest metals load input (in the Little Blackfoot River) occurred between sites LBF-2 and LBF-4 on the mainstem, over which distance the stream receives contributions from the Charter Oak, Golden Anchor, Kimball, and Mountain View Mines. This source area requires major reductions."

Montana DEQ's Abandoned Mine Lands Program serves as the lead entity on project design and contracting. This project builds upon past successful reclamation efforts in the drainage by the Helena National Forest and is planned to start in the summer of 2018.

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Applicant Name: Montana Department of Environmental Quality

Project Title: Upper Blackfoot Mining Complex—Wetland Connection

Project Abstract

The Upper Marsh is bisected by the old Mike Horse Mine Road, preventing surface water and groundwater hydraulic connectivity. This road also contains underground power and phone lines that support the Mike Horse WTP. The goal to restore the Upper Marsh to its pre-mining condition cannot be achieved without removal of the Mike Horse Mine Road and the existing Mike Horse WTP infrastructure. Relocation of the Mike Horse WTP underground power and phone lines is critical to the success of the project.

The UBMC includes a mixture of federal and non-federal lands that covers an area of approximately six square miles, including several sections within Township 15 North, Range 6 West, and is located approximately 15 miles east of Lincoln, Lewis and Clark County, Montana, in the headwaters area of the upper Blackfoot River.

Project Goal: Relocate Mike Horse water treatment plant infrastructure that will be removed as a result of the remediation and restoration efforts in the Upper Marsh wetland area.

Objective 1: Remove the Mike Horse Mine Road, which includes buried power and phone line infrastructure for the Mike Horse water treatment plant (WTP), to reestablish the natural hydraulic connectivity of groundwater and surface water in the Upper Marsh wetland area.

Objective 2: Relocate the underground power and phone lines, currently buried in the Mike Horse Road, to the Meadow Creek Road so that the Mike Horse WTP can continue its treatment of heavy metals in the mine adit water from the Mike Horse and Anaconda mines.

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Applicant Name: Meagher County

Project Title: Meagher County Road Department Maintenance Yard Soil Remediation

Project Abstract

This Reclamation and Development Grants Program (RDGP) grant application is being submitted to the Montana Department of Natural Resources and Conservation (DNRC) by the **Meagher County Board of Commissioners** for the **Meagher County Road Department Maintenance Yard Project**. The overall goal of the proposed project is to mitigate impacts to groundwater from petroleum contaminated soils on the site. Mitigation of the groundwater plume is necessary to ensure long-term protection of human health and the environment. The specific objective of the project is to remove and properly dispose of hydrocarbon-contaminated soils in accordance with all applicable State environmental regulations, by fall 2017.

The project site is located in the southwest portion of White Sulphur Springs in Meagher County, Montana. The site serves as an equipment storage and maintenance facility for the County road department. A number of investigations have identified elevated hydrocarbon concentrations in soils and shallow groundwater within and downgradient of the site. Hydrocarbon contaminants, including benzene and other petroleum constituents, occur in on-site and off-site groundwater at concentrations as high as 1,000 times the State of Montana drinking water standards. The off-site migration of groundwater contaminants has the potential to impact human health (through exposure to groundwater or organic vapors), and downgradient surface water and wetland features.

Meagher County intends to excavate the hydrocarbon contaminated soils, estimated to range from 1500 to 2000 cubic yards in volume, and dispose of the soils at a municipal landfill in Helena. Excavation and disposal of the soils is the most cost effective option based on the cost and technical impracticality of the other options evaluated. Pending approval of this application, soil excavation and disposal would occur in 2017. Follow-up groundwater monitoring to assess the remediation effectiveness would occur in spring and fall 2018.

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Applicant Name: Mile High Conservation District

Project Title: Conifer Encroachment Reduction

Project Abstract

Rocky Mountain Juniper and other conifers have been gradually encroaching into wet meadows and sagebrush grassland communities in Montana and throughout the West since the late 1800s. Existing studies have indicated that conifer encroachment was synchronous with the cessation of frequent surface fires, and has resulted in detrimental environmental impacts from conifers replacing aspen and understory species more valued for both wildlife and livestock. Impacts include: a decline in available forage for livestock, a decline in plant species diversity and productivity at a landscape scale, a decline in forage/browse for wildlife negatively impacting abundance/diversity and a shift in vegetative composition. This makes wildland fires more resistant to control which increases fire hazard to private property, suppression costs and negative impacts of fire resulting in a corresponding impact to water availability.

Currently there are a lack of programs and individual organizational capacities to proactively address this issue on a landscape scale in Montana. Mile High Conservation District (MHCD) is a member of the Conifer Encroachment Working group and is the applicant for this grant. The working group proposes to develop and test an interagency program that uses local Volunteer Fire Departments along with State and Federal resources to assist with control of conifer encroachment on rangeland, forests, and headwaters tributaries. The proposed project includes private lands in Jefferson County and Silver Bow County.

The projects will demonstrate the viability and benefits of conifer encroachment control at a watershed scale. The project will test the feasibility of implementing a conifer encroachment control program similar to the one currently under way in Oregon and other states.

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Applicant Name: Missoula County Commission and Planning Services

Project Title: Ninemile Creek Housem Placer Mine Reclamation

Project Abstract

There is a long history of surface mining in the Ninemile Creek watershed. The Ninemile Mining District, or the Housum Placer, is generally considered to extend up Ninemile Creek for approximately 16 miles, starting at the confluence of Kennedy Creek and extending upstream to the headwaters of Eustache and St Louis Creek. Records indicate that a placer gold boom occurred on Ninemile Creek starting in the late 1800's and mining with dragline dredges, hydraulic mining, and sluicing continued until the late 1940's.

The historic mining activity in the Ninemile Creek watershed significantly altered the landscape. Specific problems include piles of placer mine tailings that range from 12 to 40 feet tall, a lack of floodplain connectivity, and excessive erosion. Large settling ponds dot the landscape and riparian vegetation throughout the site is insufficient to maintain adequate bank stability, provide shade, and filter out sediments and other pollutants from the stream. This project will focus on 3,600 feet of Ninemile Creek, between Burnt Fork Creek and Twin Creek. The two main goals of the project are to reclaim mining impacts and improve water quality on Ninemile Creek and reconnect previously damaged tributaries along Ninemile Creek.

This project is part of a cooperative effort to clean up abandoned mine sites in the Ninemile Creek watershed, which started in 2004. Trout Unlimited, the Lolo National Forest, and Missoula County have undertaken planning and data collection efforts throughout the watershed to document impacts, evaluate alternatives, and develop conceptual plans for this project. As a result, five mine sites on tributaries to Ninemile Creek have already been reclaimed, which were funded in part by DNRC Reclamation and Development grants. This project will build on previous reclamation work done in the Ninemile Creek watershed by connecting previously restored sections of Ninemile Creek and adjacent tributaries.

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Applicant Name: Richland County Conservation District

Project Title: Mitigating Impacts to Fox Hills/Hell Creek Aquifer

Project Abstract

The project goal is to reduce the volume of water wasted from the Fox Hills-Hell Creek (FHH) aquifer by evaluating artesian flowing wells and making wellhead repairs to prevent water loss. The objectives are to reduce or eliminate the current rate of water-level decline in the FHH aquifer and to restore pressure heads. The FHH aquifer underlies the eastern one-third of Montana, and is mentioned as an aquifer of concern in the 2015 Montana State Water Plan. The largest increase in water use from the FHH coincides with oil development in the 1970s and 80s.

There has been a renewed interest in using FHH aquifer water for hydraulic fracturing. The area of greatest water-level decline is near Sidney MT where the highest density of FHH industrial wells used for oil development exists. FHH aquifer well owners have noticed significant declines in production and shut-in pressure over the past several decades. Water-level monitoring has documented declines of 1-4 ft./yr. over the past 40 years in Richland County as well as in neighboring counties in North Dakota (Honeyman, 2007). The lower pressures have caused some flowing wells to stop, making them unusable.

To assess this problem, the Richland County Conservation District (RCCD) in cooperation with the Montana Bureau of Mines and Geology (MBMG) recently completed an inventory of FHH aquifer wells. The inventory found that approximately 25 percent of FHH wells located in low elevation areas along the Yellowstone River Valley between Glendive and Fairview, Montana, need remediation. This three year project follows the recommendations of the 2015 Montana State Water Plan to control discharge from uncontrolled flowing wells.

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Applicant Name: Roosevelt County

Project Title: Kenco Refinery Cleanup

Project Abstract

The Former Kenco Refinery is located in Roosevelt County (the grant applicant) on the Fort Peck Indian Reservation approximately six miles east of Wolf Point, Montana. This grant will fund the priority cleanup activities that are crucial to facility redevelopment as a refinery and energy campus. The project would be completed within two years of grant award.

The refinery, which operated from 1962 until 1985, produced primarily jet fuel. Environmental assessment began at the facility in 1996 to understand the nature of contamination at the site. The most recent investigation, completed using U.S. Environmental Protection Agency (EPA) Brownfields Assessment Grant funds from the Great Northern Development Corporation (GNDC), profiled the volume and contents of remaining aboveground tanks, identified areas of surface soil and shallow groundwater contamination, and evaluated cleanup alternatives for the facility.

The landowner, in cooperation with the County, the Assiniboine & Sioux Tribes, and GNDC, has proposed a development of a new energy campus at the site. The development would provide numerous jobs and increased tax revenues for the County and the State. The owner has worked closely with the County, Tribes, and GNDC to quantify environmental concerns, and to develop a mutually-beneficial redevelopment plan for the facility. The cleanup activities proposed for this project are considered to be necessary for site closure, coupled with an innovative soil treatment technology supported by the Montana Department of Agriculture and two Montana Universities, and include:

1. Removal and disposal of the contents of a damaged aboveground storage tank (AST) and excavation of and on-site treatment of impacted soil around tank which currently poses an immediate threat to human health and the environment;
2. Excavation, onsite landfarming of contaminated soils, and phytoremediation of contaminated soil using industrial hemp; and;
3. Design and implementation of a free product recovery system (product extraction well, secondary containment cell, and associated infrastructure) at the rail loading area where a large plume of product is located.

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Applicant Name: Ruby Valley Conservation District

Project Title: California Creek Mining Reclamation

Project Abstract

The California Creek Mining Reclamation (CCMR) project has been developed by the Ruby Valley Conservation District (RVCD) and Ruby Watershed Council (RWC) as part of the Ruby Watershed Restoration Plan (WRP). California Creek is a tributary stream of the Ruby River originating in the Southern Tobacco Root Mountains in Madison County, MT. The stream flows approximately 10.9 miles from its headwaters on public land managed by the U.S. Forest Service to its confluence with the Ruby River north of Laurin, MT. The project location is approximately 8.5 miles southeast of Sheridan, MT on land managed by the U.S. Bureau of Land Management (BLM).

The goals and objectives of this project follow:

1. A 25% reduction in sediment loads in California Creek to meet the total maximum daily load for sediment in California Creek (DEQ 2006).
2. Re-establish stream and floodplain processes and function that restore riparian areas in the mining affected reaches on public property of California Creek.

The desired outcome for California Creek is to decrease sediment inputs into the creek from upland sources and to restore stream and floodplain functions while minimizing disturbances to the riparian area itself and the surrounding hillsides. Additional desired outcomes include revitalizing riparian plant communities, increasing in-stream habitat, and increasing floodplain access and groundwater recharge in a system that often sees flows drop drastically in late summer.

The CCMR project will coincide with ongoing BLM watershed assessment efforts to ensure all NEPA requirements are met during the project planning process. Watershed assessments for the California Creek drainage are scheduled for 2017. Project planning work is expected to begin in 2017. Implementation is expected to take place from 2017 to 2019 with project monitoring efforts beginning in 2018 and continuing to 2019.